

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

PATENT SPECIFICATION (11)

1 428 239

1 428 239

- (21) Application No. 12657/73 (22) Filed 15 Mar. 1973
 (31) Convention Application No. 7220627 (32) Filed 8 Jun. 1972 in
 (33) France (FR)
 (44) Complete Specification published 17 Mar. 1976
 (51) INT. CL.² H05B 3/20
 (52) Index at acceptance H5H 109 131 170 230 233 271
 AG AH



(54) ELECTRICALLY HEATED ASSEMBLIES

(71) We, CIBIE PROJECTEURS, a Societe Anonyme organised under the laws of France, of 17, Rue Henri-Gautier, 93113 BOBIGNY, France, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to electrically heated assemblies.

Numerous technical applications, for example for monitoring, controlling and regulating purposes are available for electro-mechanical devices, in which an electrical heating circuit is utilised to produce a change in condition of the devices. For example many systems incorporate a bimetallic heated strip comprising two metallic members having unequal coefficients of expansion. This strip tends to curve to a varying extent depending upon the change in temperature to which it is subjected.

According to the present invention, an electrically heated assembly comprises an elongate bimetallic member extending through a number of spaced apertures in an elongate support, the support bearing a resistance heating circuit of zigzag shape affording interconnected U-form portions, each aperture being situated between the legs of a U-form portion.

The invention may be carried into practice in a number of ways, but one specific embodiment will now be described by way of example, with reference to the accompanying drawings, in which:—

Figure 1 is a plan view of an electrically heated assembly according to the invention; Figure 2 is a side elevation of an assembly similar to Figure 1, and

Figure 3 is a plan view of a support member bearing a printed circuit without the bimetallic element.

The drawings illustrate a strip B comprising a base 10 and a bimetallic element 11 which is adapted to move and undergo deformation with respect to the base 10 when heated.

For example, Figure 2 illustrates a displaced position 11'.

The bimetallic element has associated with it a heating element generally indicated at I and including a printed resistance heating circuit 21 mounted on an elongate support 20. The circuit 21 has a zigzag pattern which in the assembly shown is formed of interconnected U-form portions.

The resistance circuit 21 is varnished for protection as is conventional with printed circuits. The support 20 upon which the resistance circuit is mounted may be made from any suitable sufficiently flexible material such as a thin synthetic plastics. It is formed with transverse slots 22, for example of the shape shown in Figure 3 one between each of the parallel transverse limbs of the resistance circuit 21. The bimetallic element 11 is threaded through the various slots 22, and passes alternately above and below the support 20 resulting in the configuration shown in Figures 1 and 2.

This provides a very simple system which ensures very satisfactory positioning of the bimetallic element 11 to be heated with respect to the resistance heating circuit 21. As a result of the flexibility of the support 20, a system of this kind withstands the movement of the bimetallic element 11 without difficulty and, in addition, there is little or no risk of failure of electrical insulation. The assembly of parts 20 and 11 may be carried out manually or automatically.

WHAT WE CLAIM IS:—

1. An electrically heated assembly comprising an elongate bimetallic member extending through a number of spaced apertures in an elongate support, the support bearing a resistance heating circuit of zigzag shape affording interconnected U-form portions, each aperture being situated between the legs of a U-form portion.

2. An assembly as claimed in Claim 1 in which the member extends through alternate apertures from opposite sides of the support.

3. An electrically heated assembly substantially as described herein, with reference to the accompanying drawings.

KILBURN & STRODE
Chartered Patent Agents
Agents for the Applicants

Printed for Her Majesty's Stationery Office, by Croydon Printing Company Limited, Croydon, Surrey, 1976.
Published by The Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from
which copies may be obtained.

1428239

COMPLETE SPECIFICATION

1 SHEET

*This drawing is a reproduction of
the Original on a reduced scale*

Fig.1

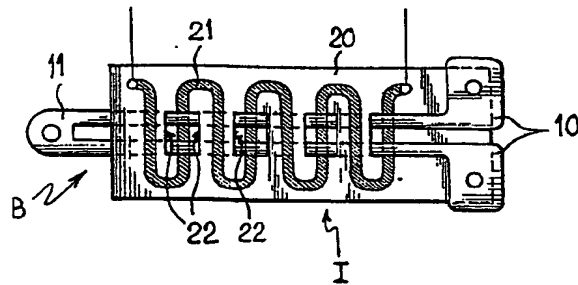


Fig.2

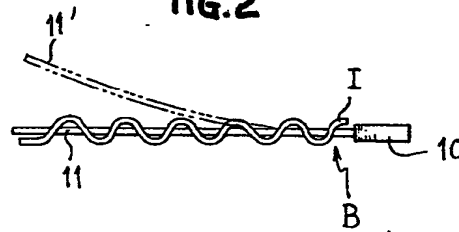
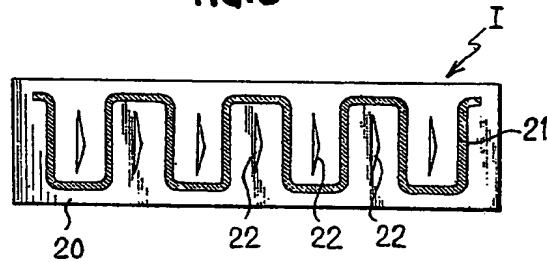


Fig.3



THIS PAGE BLANK (USPTO)